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MINERALS AND FUEL PRICE RISKS IN SOUTHERN AFRICA, AND POSSIBILITIES FOR RISK MANAGEMENT

Report by the UNCTAD secretariat

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INTRODUCTION

1. The objective of this paper is to assess the minerals and fuels price-risk exposure of a number of southern African countries, namely Angola, Botswana, Mozambique, Namibia, South Africa, Zambia and Zimbabwe.[1] Fuels and minerals play a major role in the economy and external trade of these countries, and fuel and mineral price fluctuations can therefore cause them large problems. This paper examines specifically the price risks in exports of copper, nickel, gold, platinum, crude oil and oil products and in imports of crude oil and oil products. It provides only a first assessment of price risks; more in depth-country-level analysis is necessary to develop a country-specific response to commodity price-risk problems.

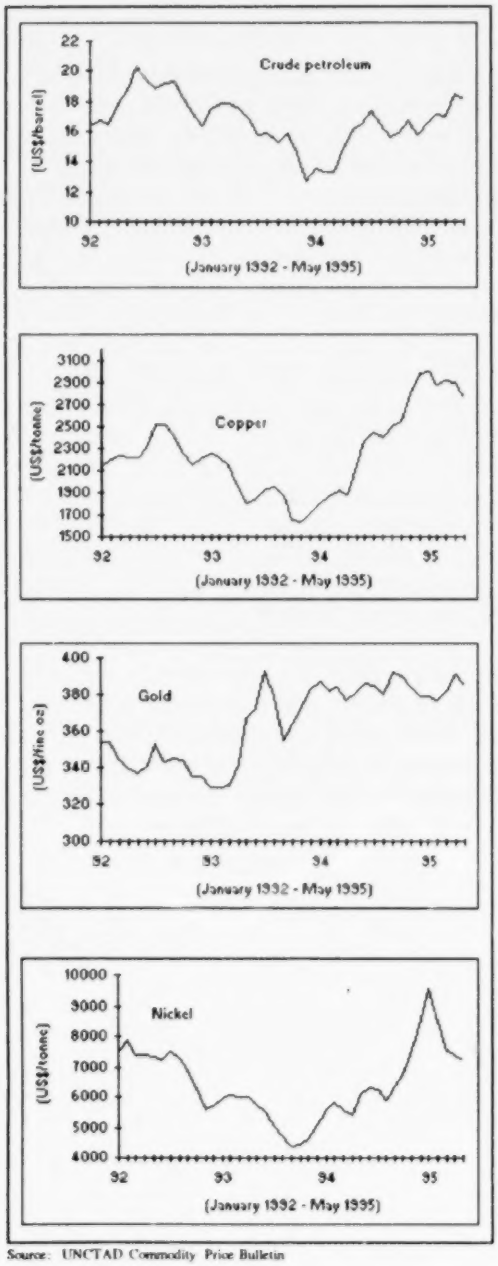
2. In some contrast with the situation two decades ago, many new producers are trying to capture a share in often shrinking markets for minerals and fuels. At the same time, pressure on state companies to be profitable has increased; and in many African countries, such state-owned companies have been sold to the private sector in recent years, while liberalization programmes have opened up external markets to private companies. New or relatively inexperienced economic actors are emerging and seeking their way in the world market. Faced with a volatile market environment, success in minerals or oil marketing requires of a producer (exporter) or consumer (importer) the capacity to obtain protection against unexpected price shocks.

3. As can be seen in figure 1, crude oil and mineral prices are very volatile and difficult to predict. For gold, the highest average monthly price during the period January 1992- May 1995 was some 20 per cent higher than the lowest price, while for crude petroleum, nickel and copper, the differences were in the 60 to 120 per cent range. Month-to-month price changes (much metals sales are made at average monthly prices) are often high. The high price fluctuations make it difficult for anyone in these sectors to design viable long-term strategies without resorting to one form of price-risk management or another. Long-term fixed price contracts or producer-set prices were used to dealing with this type of problem for many years, but these price-setting systems have largely broken down in recent years.[2]

4. For governments, export and import prices for major products are of considerable importance. Export revenues are affected by the variability of prices, and this export instability negatively affects the economy through various channels. First, it generates uncertainty which in turn reduces the attraction of the minerals or fuels sector to investors (if risks increase, investors will insist on higher profit margins as compared to lower-risk investments; less potential projects/activities will

thus be attractive). Further, a sudden reduction in export earnings may force reduction of essential imports; on the other hand, an unexpected export price boom tends to generate domestic inflation and induce a Dutch-disease effect through the appreciation of the local currency, among other things. And finally, export instability is likely to influence government revenue and expenditure.

Figure 1
Prices of selected commodities
(1992-1994)



Source: UNCTAD Commodity Price Bulletin

5. Therefore, both for those directly involved in commodity export or import marketing and for a number of government departments, it has become increasingly important to look at ways to manage risks, including through the use of market-based instruments. Forwards, futures, options, swaps and other commodity-linked derivatives can be used to reduce the uncertainty of future income streams (both to reduce the risk of earnings shortfalls and to prevent "Dutch disease" effects) and enhance financing capabilities.

6. In the first chapter, the relative importance of the minerals and oil sector for the various countries is assessed, including the size of oil imports related to other imports and/or exports. Southern African countries are no exception to the pattern of market reforms that are typical of many developing countries and countries in transition in recent years, which has considerable consequences for the distribution of risks in the economy. Recent developments in this area will be discussed in chapter 2. Chapter 3 gives examples of price-risk management strategies that can be applied by developing country entities, strategies that in the past have been almost exclusively used by developed country governments and companies to reduce their price- risk exposure. It also provides suggestions for possible policies in southern Africa. The issue of price-risk management in this present policy context will be dealt with more in detail in chapter 4.

Chapter I

THE ROLE OF MINERAL AND OIL IMPORTS AND EXPORTS IN SOUTHERN AFRICAN ECONOMIES

7. Commodity exports are an important source of revenue for many developing countries. The commodity sector, through its export potential, makes possible imports, investments and ultimately the development process. In 1992, primary commodity exports accounted for 81 per cent of total African exports, with the majority of African countries depending on a few or in many cases only one commodity for most of their export earnings.[3] The role of commodity exports in the gross domestic product (GDP) is important as well: in 1991, commodity exports accounted directly for over one fifth of sub-Saharan African GDP.[4] Commodity trade is also a major contributor to government revenues through taxes, royalties and licenses.

8. The southern African region is different from other sub-Saharan African countries because of its heavy dependence on exports of minerals and fuels, rather than on agricultural products. Southern Africa is well known for its vast mineral endowments, and is far from having reached its full production potential. Rationalization and liberalization programmes, accompanied by a new political environment, have attracted the interest of many private companies in new exploration and exploitation projects.

9. Southern African countries dependent on minerals and fuels for the major part of their exports consume very little of their production themselves: most of the output goes to the world market. Mining and mineral processing are energy-intensive activities, and both the mineral and the energy sector are highly import-intensive. Although hydropower, gas and synthetic fuel production satisfy part of domestic energy demand in some Southern African countries, oil imports account for a major part of total imports in most countries. These countries are thus very vulnerable to external shocks of various kinds, such as price fluctuations and exchange-rate variations.

10. Several structural determinants of economic vulnerability are discussed in this chapter: dependency on minerals and fuels for exports, including in terms of the relationship between exports of these commodities and import capacity; the importance of fuels for imports; and the role of the mineral/fuel export sector in GDP and for government revenue.

11. In 1989-1991, the share of the main commodity exports in total export value in the southern African region varied from more than 75 per cent in the cases of Angola (petroleum), Botswana (diamonds) and Zambia (copper) to around 25 per cent in the cases of South Africa (precious metals) and Zimbabwe (tobacco). Table 1 indicates the relative share of the commodities covered by this study in total export earnings and import expenditures.

Table 1
Share of major minerals and fuels in international trade (1992)

	Share in export earnings (percentage)						Share of fuels in import expenditures #
	Copper	Nickel	Gold	Platinum	Crude oil and fuel products	Other major exports	
Angola					91	Diamonds 8	
Botswana	2	6	*			Diamonds 78	11
Mozambique			*		1	Shrimps 46	12
Namibia	6		14			Diamonds 34 Uranium 20 Fishing 20	37
South Africa	1	1	27	3		Coal 7 Diamonds 6	18
Zambia	87		*			Cobalt 7	16
Zimbabwe	1	5	14	*	1	Tobacco 31	14

Source: UNCTAD secretariat databases. Note that export and import data are in some cases mere estimates.
\# Data on fuel imports are for 1991 or the latest available year.
* Indicates exports of less than 0.5 per cent of total merchandise exports. Data on precious metals are notoriously unreliable - according to some estimates, Mozambique's exports of gold accounted for more than 2 per cent of total exports, and for South Africa's platinum exports, some estimates indicate a share of 4 to 8 per cent in total exports.

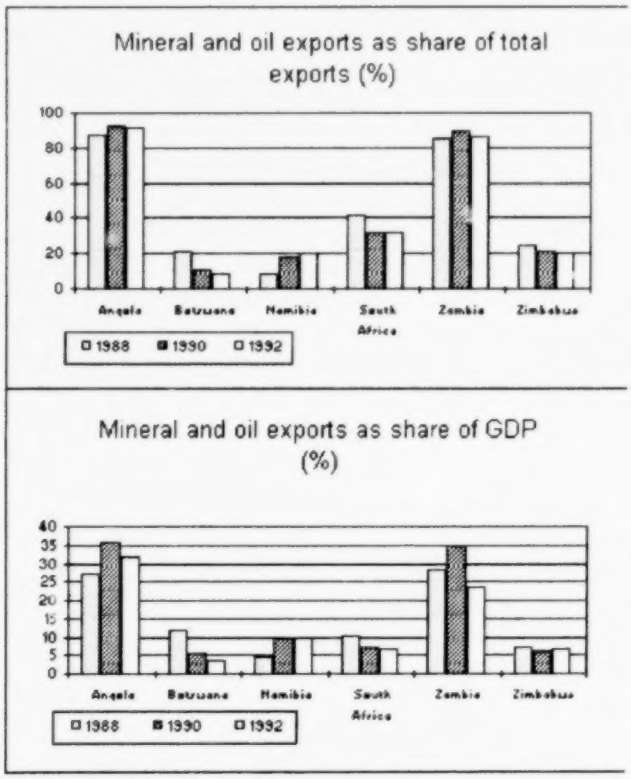
12. Figure 2 shows the share of fuels and minerals (diamonds and uranium excluded) in total exports and GDP in 1988, 1990 and 1992. Of the highly dependent group of countries, Angola is the only significant oil producer - except for diamonds, it has no other valuable mineral exports, and its once large coffee industry has been mostly destroyed by civil war. Virtually all of Angola's oil output is exported (the country's own electricity needs are largely met by hydroelectric power), and oil trade forms the core of the Angolan economy, accounting for almost all exports and over one third of the country's GDP in the last five years; the Angolan Government also receives most of its tax income from the petroleum sector.

13. Botswana and Zambia are largely dependent on only one export commodity as well, in this case diamonds and copper, respectively. Diamonds are not covered by this study - although attempts have been made at times to introduce a futures market for diamonds, these have failed, and the sector's price-risk management, fairly effectively so far, now comes from the power of the Central Selling Organisation. However, two other minerals for which futures markets do exist, nickel and copper, also play a reasonably large, be it declining, role in Botswana's economy. In Zambia, the copper industry earns the country almost all of its export revenues, and accounts for over one quarter of its GDP and a large share of government revenue. This dependency on copper has created a large exposure to copper price trends, in the long run, and to shorter-term copper price fluctuations. The failure of at least one structural adjustment programme during the 1980s was interalia attributed to temporarily declining copper prices. In the early 1990s, declining copper prices (which have since again increased) caused severe cash

flow problems for the country's state-owned copper producer, Zambia Consolidated Copper Mines Ltd. (ZCCM), slowing down its payments to its suppliers, thus causing the bankruptcy of at least 100 Zambian firms with more than 10,000 formal sector jobs lost. Rising copper prices, on the other hand, force the Zambian Government to find effective ways to sterilize the extra money supply. Botswana and Zambia are exposed to oil price risks as well: a significant share of their export earnings is used for oil imports.

14. Namibia is endowed with a variety of exportable minerals - uranium, gold and copper are the main ones. For uranium, there again is no risk management market, and thus, this sector is not covered in this report. Gold and copper provide the country with a significant part of its total export earnings, and, in particular increasing gold exports have contributed to a growing role of mineral exports in GDP over the past few years; this share doubled from 1988 to 1992. The Government of Namibia receives a major part of its revenues from taxes on these mineral sectors. On the other hand, a very large part of total import expenditures is for oil, again causing a significant exposure to price risks.

Figure 2
Mineral and oil exports as share of total exports, and of GDP (1988, 1990, 1992)



Source: UNCTAD Commodity Yearbook 1994

15. South Africa and Zimbabwe have highly diversified economies, but nevertheless, their minerals sectors are very important both for exports and employment. Minerals (in particular gold, coal, diamonds, platinum, copper and nickel) still account for almost one half of South Africa's total export earnings, and were only recently surpassed by manufactures as the main export category. The risk of exposure to world market prices is clearly visible in the developments in South Africa's platinum and gold sectors in the first half of the 1990s: in both sectors, many mines had to close or reduce their workforce as a result of world market price declines (in the gold sector alone, 140,800 jobs were lost, in net terms).[5] More use of risk- management instruments could have abated this crisis (and as will be discussed later, some companies indeed managed to protect their marginal mines throughout the period of low prices through an earlier locking in of gold prices). Zimbabwe's economy has a large share of agricultural products, but also an increasing share of

copper, gold and nickel in GDP and exports - the share in export earnings of these three minerals was 20 per cent in 1990-1992, with, gold in particular, set for a strong growth (tobacco is about to be overtaken by gold as the country's main export, and platinum exports are expected to increase sharply during the second half of the 1990s). Both in South Africa and in Zimbabwe, the mining industry is not a major source of Government income: the 1993 share of mineral taxes and royalties in Government income in South Africa was 2.2 per cent (company profit taxes excluded), and the Government of Zimbabwe, rather than taxing, tends to subsidize mining enterprises during periods of unfavourable market conditions. Although neither of these two countries produces oil, because of the strength of their economies oil imports are not very large relative to total imports or to export income. Nevertheless, South Africa does have a large synthetic fuels industry, accounting for one third of its fuel needs; in all, its oil industry has an annual turnover of US$ 13 billion, employs some 110,000 people and accounts for around 7 per cent of GDP.[6]

16. Mozambique is the only country covered in this study that is not an important mineral or oil exporter. It should be mentioned though that at present the country's gold sector is growing rapidly. The country is interesting for this study because of the heavy burden of oil imports on its economy: hydrocarbon products account for a large share of total imports, and absorb in effect the major part of the country's export proceeds.

Chapter II

MARKETING AND PRICE-RISK EXPOSURE

Introduction

17. Commodity policies in most southern African countries have changed drastically in recent years. In the mineral and oil export sector, there was a movement from state-ownership to privatization. At independence, many developing countries nationalized their essential industries. Several countries turned towards state-controlled economies. Mineral exports were important generators of export revenues at that time already, and state-ownership of mineral resources was introduced on a large scale, often encompassing the stages of processing and export marketing as well. By the mid-1980s, more than 40 per cent of the value of world non-fuel mine output could be attributed to state mining enterprises, with, for example, state copper output at 54 per cent; African countries accounted for a large share of this.[7] Often prices were set for the different levels in the marketing chain. It was thought that government control of the flows of mineral export revenues would ensure macroeconomic stability and facilitate the collection of taxes, which could then be ploughed into national economic development. State interventions in the oil industry were rationalized in similar terms.

18. However, state-ownership of mining companies frequently comes with high welfare losses. Having to pursue commercial as well as social goals, state-owned mining enterprises are often less flexible than private-sector companies in responding to depressed and fluctuating mineral prices, and less inclined to take action in case of declining profits. In many countries in the region, necessary investments in the mines' modernization and productivity improvement were postponed or entirely ignored, in the face of conflicting demands on government budgets. For a long time, the only reaction of many African governments to the increasing financial pressures was to exploit to the maximum extent the easiest accessible reserves, without much thought about future generations. Nevertheless, the increasing competition from lower-cost mining companies put African governments under pressure to raise capacity utilization and cut costs, with the result that several important policy changes have been made in recent years. To increase efficiency and attract new investment capital, liberalization and privatization programmes have been designed in several countries, often in cooperation with the World Bank. As will be discussed below, some southern African countries still are in the process of implementing measures to liberalize the mineral sector, while others have already largely privatised this part of their economy. In particular, in the case of the oil-export sector, changes have been relatively slow.

19. In the oil import sector, the situation developed also from government control to liberalization. Because of the crucial importance of crude oil and oil products for urban (politically powerful) households, for many sectors of the industry and for economic development in general, and additionally because of the significant importance of oil trade for the country's tax revenues, state interference in the import and pricing of these products has been considerable. Governments generally controlled oil imports, and sold fuels at heavily subsidized prices in the domestic market. South Africa, and earlier also Zimbabwe (then still known as Rhodesia) and Namibia, had set up a controlled oil sales system to deal with embargoes against their countries. Other countries, often having socialist-type regimes, obtained favourable import prices from countries with which they had special relationships.

20. However, government price interference has often led to distortions in consumption patterns since prices did not reflect true economic costs. Because of the costs related to subsidizing oil consumption, price support is now being reconsidered by many southern African governments. The embargoes that hit South Africa and several neighbouring countries have been lifted, which also helped to stimulate a rethinking of oil policies. The splitting up of the former Soviet Union has halted the preferential treatment that formerly strategic socialist third world countries received: these countries now have to import oil at world market prices, which has put great pressure on state oil-importing budgets.

21. These developments have had important consequences for minerals and oil marketing, and have resulted in a shift in the exposure to world market price fluctuations. Where government agencies and parastatals used to bear the major part of price risks, now often private companies have to cope with unsure and variable income streams. In the following discussion, the recent developments in liberalization policies, and especially in import and export marketing among the countries under study, will be described, and the entities/groups that are presently exposed to price fluctuations will be identified.[8]

A. Angola

22. At independence in 1975, the state became the sole owner of the country's petroleum deposits, and created for its management a Ministry of Petroleum and a national oil company, Sociedad Nacional de Combustiveis de Angola (Sonangol). For a long time, oil marketing was also the exclusive preserve of the government. However, during the 1980s, Sonangol was allowed to enter into joint ventures and product-sharing agreements with foreign companies to obtain necessary finance and technical resources.

23. At present, oil production and marketing is undertaken jointly by the State and Chevron and Texaco (both from the United States), Elf Aquitane (France), Texaco (US), Petrofina (Italy), Shell/British Petroleum (BP) (the Netherlands, United Kingdom) and Repsol (Spain). Oil-export revenues are shared in accordance with agreed distribution ratios. In particular, the Angolan Government, which relies heavily on taxes on oil exports, is exposed to major price risks. For the time being, it hardly manages these risks, with the exception of short-term risks related to the oil to be produced on new fields (in which case proceeds had to be sufficient to reimburse a loan - see chapter III).

24. Less than 5 per cent of oil production is refined and used domestically. For many years, the oil processing has been performed by a refinery largely owned by Petrofina; its margin is fixed through a cost-plus system. The Angolan Government, through Sonangol, has a monopoly on distribution, and heavily supports prices of domestically sold petrol and other fuel products. The Government subsidizes the full difference between world market prices (or, for that matter, production costs) of fuel products and domestic sales prices (in 1990, subsidies amounted to US$ 242 on total procurement costs of US$ 247 a tonne). Because of the heavy burden of these subsidies on the government budget, it was decided under the Programa Econômico e Social (PES) to increase oil prices in the domestic market somewhat; in 1993, petrol prices rose almost fivefold, which still kept them far below world market prices. Further price increases followed in 1995, but subsidies remain large.

B. Botswana

25. In Botswana's economy, the private sector plays a major role. Even though the Botswana Government is the major shareholder in copper-nickel exploration, the effective control and management of the mining enterprises are largely left to private companies (but the Government subsidizes production and income shortfalls of the state-owned mines). The gold, copper and nickel produced in Botswana are marketed by private mining companies, which are fully exposed to price risks and appear to do little to manage them. For example, the major nickel producer, Bamamgwato Concessions Ltd. (BCL Ltd.), was threatened with liquidation in 1987 because it had accumulated a large debt during a time of high nickel prices, without actually locking in these prices; when prices declined, the company had problems servicing its debt, and was only saved by a fortuitous price rise of nickel on the world market in 1988.

26. Oil imports and distribution in Botswana is in the hands of five private oil companies, namely Shell, Total, BP, Caltex (a Texaco/Chevron joint venture) and Engen (South Africa). The Government regulates most product prices of petroleum, and finances a security buffer stock held by these companies. The prices of oil products are set as a function of the previous month's Free-On-Board (FOB) prices in Singapore and Bahrain, adjusted for freight and other transport costs, and a fixed margin for the distribution companies. Prices are adjusted monthly. Hence, price risks are transferred to the consumer, even in times of major price increases.

C. Mozambique

27. Most of the minerals Mozambique produces are minor metals for which no risk-management markets exist. However, the production of gold is on the increase; according to the Washington-based Gold Institute, Mozambique and Botswana will be the world's fastest growing gold producers in the 1990s, albeit from a small base. Also, a major part of Mozambique's export receipts are absorbed by the costs of oil imports. From independence in 1975 to the early 1990s, the Government controlled all economic activities and thus took on all price risks. In 1991, however, it was decided that the economy should be liberalized, and in the Privatization Act of that year, the Government decreed that state enterprises were to be privatized, turned into commercially oriented public enterprises, or liquidated.

28. By early 1994, this privatization had reached the minerals sector, and all gold sales are now in the hands of private companies. The companies that mine gold in Mozambique (Benison from South Africa and Lonrho from the United Kingdom, in a joint venture with the Government), are allowed to market the gold on their own account. But export receipts have to be remitted to the Central Bank, exposing the companies to foreign-exchange risks. It is planned that mining companies will be allowed to repatriate part of their profits and dividends in United States dollars (US$).

29. Reform of the major utility parastatals and the state-owned oil company Empresa Nacional Petroleos de Moçambique (Petromoc) has been started as well. Oil imports have been liberalized, even though in practice, Petromoc is still the sole importer of oil products (the state-owned Maputo-refinery, built in 1961, is now mothballed) and also is the largest distributor of fuels on the domestic market (followed by BP; Mobil and Caltex have small market shares). For many years Mozambique paid concessional prices for its imported oil, but with the recent

changes in the former Eastern bloc countries, Mozambique has had to start buying its oil on commercial terms.

30. Although Petromoc now has to import at world market prices, it shifts all risks to consumers, through the pricing system applied in Mozambique. From time to time, on average every four months, Petromoc, in cooperation with the Government's Prices and Incomes Commission, fixes sales prices based on the world price of petroleum during the previous months plus a profit margin.

D. Namibia

31. As concerns the commodities for which market-based risk management instruments are available, Namibia produces gold and copper, and imports oil. Gold and copper production is in the hands of a number of South-African firms: all copper is produced by Tsumeb Corporation, owned by Gold Fields of Namibia, which also produces gold; and the remainder of gold output emanates from the Anglo American Corporation. Both of these companies have to market their gold through the Central Bank, in an arrangement very similar to that of South Africa (see below). They market their copper themselves.

32. In 1991, the Namibian Government adopted a petroleum regime in which all exploration, production and disposal of petroleum takes place under a license issued by the Ministry of Mines and Energy; a negligible amount of oil is produced locally at this moment. Most fuels are imported in the form of crude oil and petroleum products, by commercial firms that also refine and distribute them. BP, Shell, Caltex, Engen, Mobil, and Trek buy crude oil and oil products from South Africa, Angola, Bahrain and Curaçao on long-term contracts. Domestic prices are set according to a formula, with prices depending on the previous month's FOB prices in Singapore and Bahrain, plus transport costs and a variable margin for the refining and distributing companies.

E. South Africa

33. South Africa is the world's largest producer of gold, a major producer for a range of other metals, and is also a large oil importer. Most mining production is by a small number of very large conglomerates: Anglo American Corporation, Barlow Rand, Gencor, Gold Fields of South Africa, Johannesburg Consolidated Investment and Anglovaal. The ownership structures are highly interrelated. The Anglo American Corportation, for instance, until recently held a 48 per cent share in Johannesburg Consolidated's mineral and industrial assets; it is expected to sell its gold and coal holdings to Real Africa Investments, an emerging black business grouping. The conglomerates also have important mining interests in other southern African countries.

34. Production is largely in the hands of the private sector, with the Government playing only a minor role. Of the metals traded on commodity exchanges, South Africa produces significant amounts of gold, platinum and nickel, and smaller amounts of copper and silver. The largest gold-producing groups are the six conglomerates mentioned above. Nickel is mostly a by-product of platinum production; the main producers of platinum and nickel are Gold Fields of South Africa, Gencor, Lonrho (United Kingdom), Rio Tinto Management Services SA (part of RTZ, United Kingdom) and a company in which Johannesburg Consolidated and Anglo

American together hold a majority interest.

35. With the exception of gold, all minerals mined in the country may be exported and marketed freely. Private companies thus run all the price risks. South African companies have traditionally not been very active in managing these risks. Under South African law, most of the gold produced in the country has to be sold to the Treasury, represented by the South African Reserve Bank (SARB), which then adds it to its reserves or markets it internationally; up to one third of South African gold production can be sold by the Chamber of Mines in value-added forms of one kilogram or less. Since December 1988, SARB has paid the producers in US dollars a price that is based on the two previous fixings on the London gold market, reduced by an administrative charge of about 10 per cent; 90 per cent of the purchase price is paid in US dollars. As SARB does not immediately sell all the gold it buys, price risks are shared by the private sector and the Government.

36. It should be noted that a number of South African companies[9] as well as the Reserve Bank have been actively involved in the gold derivative markets - in 1990, it was estimated that some 15 per cent of expected output was hedged in one way or another,[10] and by 1993, this had increased to some 28 per cent.[11] Mines are permitted to hedge a certain percentage of their production, and have to report their hedging positions weekly to the Reserve Bank, so that the latter can avoid "over-hedging". The actual percentage of production which may be hedged varies from mine to mine - marginal mines may hedge their full annual production, while lower percentages are approved for more profitable mines.[12] Keeping marginal mines functioning is in effect one of the main purposes of hedging activities, as it allows companies to retain most of their workforce, and thus, they can be seen as fulfilling their social commitments; Anglo-American claimed in 1993 that its hedging policies allowed it to save 70,000 jobs.[13] In July 1990, SARB also introduced facilities that allowed the mines to sell forward for a fixed price in rands (the local currency units) for a period up to two years. The mines that hedge tend to use both the Reserve Bank facilities and the European and American gold derivative markets.

37. South Africa produces no crude oil; in 1985, petroleum and natural gas deposits were discovered, but exploitation is limited to the production of liquid fuels from one offshore natural gas source - once production is finally on stream, it is expected to provide one tenth of South Africa's liquid fuel requirements. South Africa thus depends on imports and on production of synthetic fuels (in particular from coal) to meet its fuel requirements. From 1973 until October 1991, South Africa's imports of crude oil and oil products were under embargo from the United Nations. In reaction, the Government adopted a strongly interventionist policy with considerable consequences for the marketing and pricing system. In particular, the programme for domestic (synthetic) fuel production, which had already been started in 1954, was further stimulated; refining and distribution were regulated; and in the early 1980s, the Government, through the Strategic Fuel Fund (SFF), took the responsibility for oil imports. The SFF sold crude oil imports to oil companies at prices high enough to cover the mark-ups demanded by the intermediaries which circumvented the embargo.

38. With the abolition of the sanctions, a process of liberalization was started. Refining was deregulated in May 1991. From July 1993 onward, private oil companies (Engen, Shell, Caltex, British Petroleum and Total are the main firms) were allowed to import 80 per cent of South Africa's crude oil requirements, with the remaining 20 per cent still being imported by SFF,

which also continued to manage the country's strategic crude oil stockpiles.[14] These firms operate four crude oil refineries, and a number of marketing companies. These marketing companies must purchase fuels both from their own refineries, and from the synthetic fuel producers, at an import-parity price determined on the basis of posted prices of petroleum products produced by refineries in Singapore and Bahrain (this implies that local refineries are forced to be equally efficient as these world-market oriented refineries).[15] Retail prices are set on the basis of import-parity prices (prices have thus been generally on a par with international levels). Since mid-1994, prices have been adjusted monthly. This system implies that refiners' and retailers' margins are protected (be it, in the case of refiners, at internationally competitive levels), and price risks are put on the shoulders of consumers.

39. Around one third of South Africa's liquid fuel production consists of synthetic fuels, and the Government has put into place a system to protect the synthetic fuel industry. In this system, the Government, through its Equalization Fund (which is sustained by taxes on fuel consumption), pays the South African Synthetic Oils Ltd. (SASOL), the company producing the synthetic fuels when world market prices are below US$ 21.40 a barrel; between US$ 23 and US$ 28.70, no protection is given; and above US$ 28.70, SASOL starts reimbursing the Equalization Fund (25 per cent of the marginal revenue is paid to the Fund). SASOL has a refining capacity of 150,000 barrels a day, crude oil equivalent, and taking into account that world crude oil prices are generally below US$ 23 a barrel, the Government is exposed to major price risks. SASOL was privatized for 70 per cent in 1991, and in 1993, the National Economic Forum Liquid Fuels Task Force was set up to reconsider the structure of oil prices and the juridical basis of the South African oil-industry. However, considering the importance of SASOL as a provider of employment and the savings it generates in foreign exchange, it seems unlikely that the company will lose its price protection.[16]

F. Zambia

40. The Government of Zambia nationalized the copper sector soon after independence. This situation was changed only in 1992, when the country launched an ambitious privatization programme with the creation of an autonomous Zambia Privatisation Agency. The Privatisation Act 1992 envisages the privatization of 160 companies, including ZCCM, the monopoly copper producer and exporter. A special report on the projected ZCCM-privatization has been prepared, and the first mines, outside of the copper sector, are already being sold to the private sector; the privatization of the whole of ZCCM is expected only in 1997. The Privatisation Act further stipulates that every future copper reserve development should be undertaken by private companies - the first such project is in its early stages.

41. Metal sales were handled for 20 years by the state Metal Marketing Corporation (Memaco) until it was absorbed into ZCCM in 1994 as part of the restructuring programme. Hence, the core tasks of this organization with regard to ZCCM - as well as the staff - have been transferred to ZCCM. Other mining companies and authorized trading agents may now freely sell their metals and minerals, provided that the Ministry of Mines has licensed the seller. The private companies that are entering the Zambian copper industry will carry all price risks when producing and selling copper, although to some extent government tax receipts will depend on copper prices. In the case of ZCCM, it is in fact the Government that runs all price risks, absorbing a large part of ZCCM's benefits in times of high prices, and providing subsidies when

prices are low - neither ZCCM nor the Zambian Government appears ever to have hedged these very large price risks.

42. The parastatal oil company, Zimoil, had a monopoly on imports, two joint venture companies (Italian company AGIP and BP, in joint-ventures with the Government) and three private companies (Caltex, Total and Mobil) were responsible for distribution. The Privatisation Act 1992 promised to dismantle parastatal control of the oil sector. Originally, it was foreseen that in 1994, Zimoil was to become a joint venture, but later it was decided to dissolve the company. Import operations would be handed over to a consortium of the private oil companies functioning in Zambia. Price risks on petroleum products are largely carried by consumers: the Government in Zambia prescribes petroleum prices that are periodically - and often drastically - adjusted.

G. Zimbabwe

43. In the early 1980s, the Government of Zimbabwe decided to establish a parastatal for the export marketing of minerals other than gold, the Minerals Marketing Corporation of Zimbabwe (MMCZ), to prevent transfer pricing. MMCZ pays prices close to the world market level, and producers thus carry virtually all the price risks. This has generated some difficulties, as most of Zimbabwe's ore reserves are not very rich, and therefore, production costs tend to be high and mines are profitable only at relatively high world market prices. The gold produced in the country is refined in the state-owned refinery, Fidelity Gold Refinery, and sold by the Reserve Bank of Zimbabwe. The Reserve Bank and MMCZ still market most of the country's metals, but in February 1994, the mining company, Broken Hill Proprietary, was allowed to start marketing the platinum it mines, paying MMCZ a commission of 0.875 per cent on all export sales. It is likely that, in the future, for larger projects, investors will obtain a similar freedom to make their own marketing arrangements.

44. In terms of employment, gold production is the largest provider of jobs in the mining sector. About 600 out of the 800 mines in Zimbabwe are gold mines, exploited to a major extent by foreign companies; also, a significant part of Zimbabwe gold production is in the small-scale sector. The gold producers, obliged to sell their product to the Reserve Bank, receive a floor price of about 950 Zimbabwe dollars an ounce; the Reserve Bank pays this price even when world market prices are below this level. It increases its prices when world market prices are higher, but in such a way that its "stabilization fund" for gold prices is replenished, if necessary. The Government and the private sector thus share the price risks.

45. The Government of Zimbabwe fixes prices for petroleum products at three levels. The public enterprise National Oil Company of Zimbabwe (NOCZIM) sells the imported oil to parastatal and private distribution companies against fixed wholesale prices. Furthermore, retail and ex-pump prices are prescribed. The Government is involved in the inland distribution of oil, being a shareholder in several oil companies. Most of the oil import price risks are taken by the Government. The selling prices of petroleum products in Zimbabwe are not regularly adjusted when world market prices change. Moreover, fuels are heavily subsidized at US$ 106 per tonne, equalling over 30 per cent of the total procurement costs. During the period of high prices resulting from the gulf war, this policy led to severe cuts in other government expenditures.

Chapter III

POSSIBLE USES OF PRICE-RISK MANAGEMENT INSTRUMENTS IN COMMODITY MARKETING AND FINANCING

Introduction

46. Given the implications of world market price fluctuations and the structure of the entities dealing with the resulting problems, this chapter demonstrates the possible benefits of price-risk management activities through a number of examples, most of which are based on experience. Although the examples are not generally applicable to every country, commodity and situation, they serve to illustrate how financial risk-management instruments can be put to use by African companies and governments.

47. Risk management can be used for both tactical and strategic reasons. Tactical reasons include considerations such as improving marketing flexibility, avoiding the risks of a concentration of sales during a short period in the year, or securing processing margins (these are not discussed here).[17] The possible strategic uses of risk-management instruments are reiterated below.

(a) **Securing export revenues and/or import expenditures**. Through risk management, exporters and importers can plan for a much longer period than would have been the case if they continued to be exposed to large fluctuations in income and expenditure. Also, if future financial flows are more predictable, access to credit may be better.

(b) **Budget securitization**. If a government receives, for example, a large part of its revenues from taxes on mineral exports, or the oil imports are traded by state-owned companies, more reliable budget planning is possible when the projected future receipts and/or expenditures are "locked in" through risk-management tools. Similarly, the operation of a stabilization fund can be considerably enhanced by the use of such tools: less (potentially considerably less) funding would, in such a case, be needed to reach the same price stabilization goals (be they for the domestic prices of exported or imported commodities, or for domestic commodities for which international futures markets exist).[18]

(c) **Improving access to investment finance**. The costs of opening a new mine or drilling a new oil well are often so large that obtaining the necessary amount in the traditional way is either impossible or prohibitively expensive. One reason for this is that, because of creditworthiness problems (including country risks), financing in African countries is available only on a very limited scale. Derivative instruments can be used to mitigate financing problems in different ways. The most straightforward way is to sell, on paper, part of the production that is expected in the future, that is, to find the investment through borrowing against the cash flows that are to be generated by the project. This and other methods will be discussed below.

(d) **Enhancing debt-servicing capabilities**. Commodity-dependent countries (or for that

matter, companies) are seen as risky borrowers, because their capacity to service their debts will rely to a large extent on export and import cost fluctuations. Making debt service dependent on export or import prices (e.g., if export prices are higher than expected, a higher interest rate is paid on the loan, but if lower, no or little interest is paid) will make loan default less likely. As a logical reaction to the difficulties that commodity exporting developing countries face in obtaining new finance to pay off existing loans, a number of commodity-linked debt reschedulings have emerged during the past decade. A wider application of this type of financing vehicle could easily be envisaged.

(e) **Improving earnings, reducing costs of storage and/or valorizing unexploited reserves through the sale of options**. Commodities in storage, or on the field/in the ground, have a value that goes beyond their simple intrinsic worth: as they can be in principle released to the market, they have a "flexibility value". For example, a commodity exporter may have a normal inventory equal to one month of export, but may be able to compress this to two weeks if necessary. The ability to adapt storage or production size is of value to the market, but most companies receive nothing for it, except when their capacity to deliver urgently needed material is called upon. Through the sale of options, well-organized companies could in effect cash in on their flexibility - this is discussed below.

48. Setting the different objectives of tactical and strategic risk-management activities is the responsibility of policy makers in companies and governments - and it should be kept in mind that the various objectives are not necessarily exclusive. In most cases, the use of market-based risk-management instruments will not affect physical marketing (commodities will still be sold at prevailing market prices), and thus, the well-known default problems of fixed-price forward sales and longer-term contracts are avoided. Rather than affecting physical marketing practices, the use of risk-management markets will allow to replicate physical deals through paper transactions. As is illustrated below, policy makers in many countries and companies have decided that indeed, commodity price-risk management instruments add a valuable extra tool to a manager's tool kit.

A. Risk-management instruments and income and cost fixing

49. Income and/or cost fixing is a simple way to use risk-management markets. An oil producer may wish to lock in the current price (say US$ 18 per barrel) for part of its daily crude oil production. Say 1,000 barrels per day over the next three years, because the price declines would erode its capacity to finance further exploration and exploitation. By using an oil swap (or an oil futures contract), the producer would effectively gain the certitude that it would not receive a price of less than US$ 18, in exchange for giving up any price higher than US$ 18. While in the remainder of its physical trade, the producer would continue receiving the market price, it would be compensated through the risk-management transactions for any prices below US$ 18 a barrel, but would lose the difference when prices are above US$ 18 a barrel. (See annex II, figure 1 for a description of an oil-producer swap.)

50. Income fixing is attractive for producers who know at which price levels they will make an acceptable profit, and who are unwilling or unable to carry the risks of not earning enough to cover ongoing expenses. Although some companies, including in Africa (Congo), have

locked in part of their future earnings, in practice, many oil companies are said to feel that they have sufficient reserves to cover large losses for a relatively long time (although the prevalent reaction of oil companies to low prices, namely, cutting on exploration expenses, would tend to suggest otherwise).

51. The other side of the coin, cost fixing, may be of great relevance, in particular if, as is the case in many African countries, oil buyers cannot lay off price increases onto consumers. An oil consumer who has only limited storage capacity cannot take advantage of price dips by larger physical storage; hence, without hedging he will be continually exposed to possible oil price rises. A country's oil import company which needs say, 1 million barrels of Brent crude every three months to meet domestic requirements, but which has only a limited budget for this (that is, if oil prices increase, the government will not increase its budget), may want to fix import prices now for a period of say, three years in order to meet planning targets. The mechanism for doing so is similar to that described above - e.g. in the case of a swap, the company would pay to the swap arranger an agreed fixed price for 1 million barrels of Brent every three months, and receive in exchange the three-month average market rate (that is, the price that it actually pays for imports) for the 1 million barrels. (See annex I, figure 2 for a description of an oil consumer swap). Naturally, if market prices decline, the company will still effectively be paying the higher swap price, and will thus be facing an opportunity loss; this is the price to be paid for certainty in reaching its budget.[19]

52. This type of arrangement is very common for airline companies: virtually all developed country airline companies, which are faced with fixed seat and cargo prices for a period of one year, prefer to fix also their main costs (fuels) for periods of one year each time by entering into swaps. Other public transport companies in many countries do the same thing - changing fares frequently during the year is often difficult. Also, in the United States, a number of municipalities use options and swaps so that they can provide low-income households with cheap heating fuel, even in times of high prices. Unfortunately, only very limited experience exists in Africa; one notable exception is Ghana's oil import company, which recently signed a swap deal to protect import prices.

53. This type of longer-term price fixing arrangement is available for crude oil and many oil products; the main non-ferrous metals; and for a number of soft commodities (although for soft commodities, the available periods are shorter). These arrangements can be made rather flexible, e.g. the possibility to benefit partly from price improvements can be built into the deal.

54. Another way of locking in prices over a longer period is through a collar, also called min-max strategy: rather than setting a fixed price, minimum and maximum prices are set. This can be exemplified by the case of a copper-producing company. The producer agrees with a bank to establish a floor price of, say US$ 1,920 per tonne, and a ceiling of US$ 1,960 per tonne. Then, if the effective international market price is between US$ 1,920 and 1,960 per tonne, the producer receives that price; otherwise, the bank provides compensation if prices fall below US$ 1,920, and the producer pays the difference to the bank if prices go beyond US$ 1,960 per tonne. This approach can be viewed as one in which the bank has effectively sold a series of options to the producer, and simultaneously has bought a series of options from it. The strike prices of the options can be chosen in such a way that this collar is without cost (apart from opportunity costs) to the company.

B. Risk-management instruments and government budget security

55. Commodity price-risk management is relevant not only for the companies producing, trading or using commodities, but also for other entities that are vulnerable to commodity price movements. For example, in many countries, a large part of tax income directly or indirectly depends on the prices of the main exports (in some cases through incremental rates: below a certain world market price, the government receives nothing, whereas above this level, it receives a gradually increasing share). As a government budget is normally set at least a year in advance on the basis of the probable government income, this leaves it exposed to the risk that prices decline below the level anticipated, and, consequently, the risk that it will be unable to pay its bills. Through direct risk-management activities by the Central Bank or the Ministry of Finance, this risk can be largely mitigated. When a government fears that a budget or, for that matter, a multi-year plan cannot be realized if export prices decline or import prices increase, it is not unlikely that rather than putting budget security at stake, the government, through the modern risk-management instruments discussed here, can obtain a comfortable level of price security.

56. A good example of a sound risk-management strategy is that of the Ministry of Finance of Mexico. To protect the government budget, the Ministry actively started using the oil futures and options markets to protect its earnings from crude-oil exports from late 1990 onward. By buying put options, the Ministry ensured that if prices fell, it would be compensated for lower tax income by profits on its option positions. It also used oil futures and swaps for the same purposes. The government had to put up deposits amounting to US$ 200 million to secure its hedging activities, which locked in minimum prices of US$ 17 per barrel, the prices assumed in Mexico's 1991 budget. As it happened, crude-oil prices fell drastically in early 1991, but the Ministry's income was secured through a net profit on its risk-management positions during the first half of 1991, estimated at US$ 125 million at least[20]. The Ministry has undertaken similar operations in the years since. In fuel-dependent states in the United States (such as Texas), and in a few other Latin American countries, departments of finance have adopted similar methods.

57. An example of what can happen without a budget-securing strategy is the Ecuador experience. The Ecuadorian government had budgeted an export price of US$ 17 a barrel for the year 1993. However, in mid-September, actual prices declined to US$ 13. Not having secured its export prices, Ecuador lost the amount of US$ 300 million in revenues.[21] After this experience, the Central Bank decided to start using options.

58. Budget securitizing through risk-management markets is an option open to governments that depend on income from taxes on oil, metals such as copper or gold, or soft commodities such as coffee, cocoa or cotton. As the period for which prices need to be protected normally does not exceed 15 months, one may use either organized futures and options markets, or the over-the-counter market. If the country is undertaking a structural adjustment programme, there are good arguments to build in price protection, and execute this risk management through the international institution(s) sponsoring the adjustment programme.

C. Risk-management instruments and investment finance

59. Investment in commodities is risky, not least because of the volatility of commodity prices. Banks are often wary of financing commodity projects, in particular if commodity price risks are compounded by country risks. They may, however, perceive a lower risk for financing projects in which price risks are (largely) eliminated, or in which the costs (debt servicing) are linked explicitly to commodity prices (which reduces the risk of default). The results will be lower interest rates and/or a higher borrowing leverage.[22]

60. This type of arrangement is available for a wide range of commodities and for virtually all countries. For example, a Zambian cotton grower took a loan carrying an interest rate tied to the international price of cotton in the mid-1980s. This arrangement linked interest payments to the revenues of the cotton. If cotton prices were high (and therefore, the Zambian grower was in a position to pay more), the lender was paid more than in the case of depressed prices.[23]

61. A copper producer could use this same structure when expanding his operations financed by a loan bearing an interest rate linked to an international price of copper. For example, instead of paying an interest rate of LIBOR (London Interbank Offered Rate) plus 2.7 per cent, he could move to interest payments of LIBOR plus to 2 per cent, to which is added 0.005 per cent for every US$ per tonne price rise above the current reference London Metal Exchange (LME) cash copper price, up to a maximum of 3 per cent. In this way, the exporter's ability to repay the loan is partly linked to the price he will get for his product. Such a risk-sharing arrangement reduces the riskiness of the loan, and hence, eases access to finance.

62. Another form of commodity-linked finance relates the loan repayments to a fixed amount of a commodity (or its currency equivalent). This form of financing is very common in the gold industry (at least in developed countries), but can also be used for crude oil, several metals, and, for shorter maturities, some soft commodities. Suppose a nickel-producing and exporting company wants to borrow US$ 20 million to expand its production capacity. Assuming the current nickel price of US$ 12,975 per tonne, to obtain US$ 20 million, the company thus would have to sell 1,540 tonnes of nickel. Rather than current production, the company can also use expected production to obtain a loan: it is possible for the company to arrange with a bank to lend the requested amount, to be repaid in eight semi-annual instalments of the US dollar equivalent of, say, 220 tonnes of nickel. Structured in this way, repayment of the loan no longer depends on future nickel prices since it is denominated in quantities of nickel.

63. In the African oil sector, this structure was used by Sonangol, the Angolan state-owned oil company. In early 1993, Sonangol arranged for a US$ 12.5 million oil-linked credit line from the Energy Merchant Bank, a subsidiary of Bankers Trust Company. This one-year credit covered the investment costs related to bringing on stream two off-shore oil wells that already had been discovered and valued. The repayment schedule was based on an estimated flow rate of 7,000 to 9,000 barrels a day. The expected revenues from 2 million barrels secured the debt repayment (in order to provide an extra cushion against production risk, the amount of production to be sold through an offshore account was put relatively high). The loan provided protection against oil price risks for these oil sales. A floor price of around US$ 17 was established, the price level of January 1993, leaving open the possibility of receiving higher prices.[24] At present, Sonangol and Energy Merchant Bank are preparing a similar oil-linked

loan, although under somewhat different conditions.[25]

64. A good example of a company obtaining investment finance by means of a commodity-linked loan is Ashanti Goldfields Corporation of Ghana. In October 1992, the company signed a US$ 140 million syndicated gold-linked loan and a related gold-hedging facility, to enable the financing of a large expansion project. The International Finance Corporation (IFC) provided US$ 40 million at a maturity of seven years; and the remaining US$ 100 million was syndicated with nine international banks with a maturity of five years. Three risk-management components were built into the loan. Firstly, the structure of the loan allowed the company to reimburse part of its loan either in dollars, or in the dollar-equivalent of a certain quantity of gold; this eliminated the price risks for about 10 per cent of its annual output of 650,000 ounces. Given the amplitude of fluctuations in the monthly average London gold prices over the period of the loan, this means the elimination of a considerable risk.[26] The second element was a separate 10-year facility set up by the IFC to allow Ashanti to manage the price risks of between 25 and 50 per cent of its annual gold output. Thirdly, one of the banks participating in the syndicate, Chase Manhattan, also established a direct gold-hedging facility parallel to the syndicated loan per cent of IFC's facility.

65. The Ashanti gold loan would probably not have been possible without IFC backing. However, one independent gold loan was arranged by an African bank in late 1993. In October 1993, gold loans were officially allowed by the Reserve Bank of Zimbabwe, if used for mining investments. This enabled the Preferential Trade Area (PTA) Bank, with headquarters in Nairobi, to arrange for Cluff Resources Zimbabwe a US$ 40 million gold loan for the development of a new underground mine, as part of an ambitious gold exploration programme the company had embarked on. The loan, which can be paid off in US dollars or gold, carries a floating total interest rate inclusive margin of around 5.6 per cent, based on the benchmark for gold loans. Borrowing this amount on the domestic market would have been extremely expensive, with net interest rates running at over 45 per cent. (See annex II, figure 3 for the Cluff Resources gold loan.)

66. Commodity-linked loans or bonds are also good internal financing vehicles for companies or governments in high-inflation economies, and they have been used as such in Mexico, Brazil and the Russian Federation. For example, from the early 1980s until late 1988, Mexico's state-owned oil company Petroleos Mexicanos (Pemex) issued oil-linked peso securities, Petrobonds, as an important source of financing. Petrobond-holders had the right to a beneficial interest in a trust owning a specified quantity of crude oil. Interest and principal on the bonds was tied to a given quantity of crude oil and the posted export prices for Mexican crude oils. A floor price established at each issue protected the investors against price falls and enabled them to profit from eventual price increases. Pemex benefited from the Petrobond structure, which matched debt servicing to its cash flows, providing protection during periods of depressed oil prices. Similarly, the Brazilian mining company Companhia Vale do Rio Doce (CVRD) issued US$ 300 million worth of two to five-year gold bonds in 1988. The bond owners were offered the choice between cash instalments equal to the original principal amount, or an amount equal to the market value at maturity of a specified quantity of gold. The investors were secured against possible devaluations of the national currency. Given Brazil's high inflation rate, the bond issue allowed CVRD to borrow at a much lower interest rate than would have been the case for more conventional forms of bonds.

D. Risk-management instruments and debt rescheduling

67. In some cases, old debts can be profitably rescheduled into new, commodity-linked debt. The default risk of the new debt is lower, which makes the arrangement attractive to the lender; and the costs are lower for the borrower because of a lower risk premium.

68. In 1988, Mexico became the first developing country to utilize such an arrangement. In order to refinance its debt bearing an interest rate of 20 per cent, private company Mexicana de Cobre SA negotiated a US$ 210 million syndicated loan combined with a copper swap. This copper-mining subsidiary of Grupo Mexico obtained a dual financial package, developed by France's Banque Paribas. The syndicated loan arrangement covered a period of 38 months and carried a fixed interest rate of 3 per cent above three-year LIBOR, considerably below the rate paid on old debt. Under the copper swap, Mexicana paid Paribas an amount based on the floating copper price it received for its exported copper. In return, Paribas paid Mexicana an amount of money related to a negotiated fixed price for the 38-month term of the loan. These fixed quarterly payments were put in an escrow account that was established by Paribas. The floating payments under the copper swap were drawn by Paribas, which covered the risks resulting from the fixed payments and floating receipts by selling terminal contracts for the quantity underlying the swap agreement. A long-term contract was established between Mexicana and the fourth party involved, Societé Générale de Metaux (SOGEM), a subsidiary of the Belgium-based Societé Générale. It was agreed that for the duration of the loan, SOGEM would buy 4,000 metric tonnes of copper anodes monthly from Mexicana, equal to about one third of Mexicana's production. The SOGEM payments, based on the monthly average price registered on the LME, were also put into the escrow account, from which the loan syndicate received its quarterly repayments. (See annex II, figure 4 for the Mexicana de Cobre copper-linked finance scheme.)

69. By linking Mexicana's repayments to the copper price quotation on the LME, the price risk involved was reduced. The establishment of an escrow account and the long-term sales agreement with a copper user covered the payment risk. Structured in this way, a first voluntary lending in hard currency to Mexico's private sector had occurred already in 1982.

70. Another example of the advantages of this type of arrangement can be found in Algeria. Sonatrach, the Algerian state hydrocarbons company, required US$ 100 million in long-term financing to fund a new hydrocarbon development. The company set up a seven-year oil-linked securities issue devised by the Chase Investment Bank in London. The proceeds of the loan were used to replace expensive LIBOR plus 4 per cent short-term loans. Under the new loan, Chase paid to the participants in its loan syndicate annual instalments totalling 1 per cent above LIBOR, plus a premium dependent on the oil price: an additional 0.125 per cent for each dollar that the West Texas Intermediate (WTI) reference price fell below the established floor price (US$ 16 in the first year), or an additional 0.125 per cent for each dollar that prices rose above an established ceiling price (US$ 22 the first year). This so-called collar-spread was widened in the second and third year by US$ 1 on both sides annually, remaining at the level of US$ 14 - US$ 24 in the last four years. Chase was paid in return by Sonatrach LIBOR plus 1 per cent, and received four call options on oil with a maximum maturity of 24 months. If prices would rise above the prescribed maximum level, of say US$ 23, Sonatrach paid Chase a certain amount of cash. While giving up some of its extra revenues, Sonatrach obtained more favourable loan

conditions than otherwise would have been possible and on a larger scale. Even though part of the loan fell in a period that can easily be described as the worst-case scenario for Sonatrach (price hikes during the run-up to the gulf war), the final costs Sonatrach incurred on this loan were considerably below the rates it would have normally paid. (See annex II, figure 5 for the Sonatrach oil-linked finance scheme.)

71. At the level of countries, commodity-linked elements have sometimes been introduced in the rescheduling of government loans. In 1990, in the framework of the Brady Plan, existing loans to Mexico and Venezuela were rescheduled. In exchange for new 30-year bonds issued by the two governments, the banks accepted lower interest rates or principal payments on their loans outstanding to these countries. The bonds entitled the banks to receive additional payments tied to international oil-export prices. Depending on oil-price movements, the holder of the bond had the right to receive up to a supplementary 3 per cent a year. These transfers under the Mexican and Venezuelan bond-issues will start after the grace period in 1996.[27] This type of issue allows considerable interest rate savings, from 1.5 to 6 per cent. Also, it provides insurance, a hedge against price declines.[28] A similar rescheduling was arranged for Nigeria a year later, and for Uruguay (which issued bonds with an interest rate linked positively to export prices, negatively to import prices). This type of arrangement could prove very beneficial for a number of African governments.

E. The sale of options to enhance earnings

72. A large African mining company was recently offered US$ 5 million for the sale of a number of call options; in return for this payment, the company would commit itself to sell at a given price, thus giving up the potential to profit from price increases beyond that price. In certain circumstances this may well be a viable proposition. Thus, for example, a gold mining company which considers that at a world market price of US$ 450 an ounce, its earnings are sufficiently high, but that at current prices of US$ 400 it is making a small loss, could then sell options, at a strike price of US$ 450, and earn a premium that would add to its current bottom line. In return, it would no longer be able to benefit from potential price increases beyond US$ 450, but it would have improved its current position from a loss to a small profit, thus smoothing its income over time.

73. Selling options implies that one is paid now for giving up an opportunity that may or may not arise in the future. Few companies are willing to give up all potential extra earnings of price improvements, but the sale of options could provide well-managed companies with the possibility to bring current earnings to a more acceptable level and thereby to reduce the instability of earnings over time.

Chapter IV

CONSTRAINTS TO THE USE OF RISK-MANAGEMENT INSTRUMENTS

Introduction

74. As was discussed in the previous chapter, there is a wide array of modern commodity marketing, risk management and finance instruments available to African countries eager to improve their earnings from commodity trade, lower their exposure to risks, and reduce the costs of trade and investment. Some of these instruments have actually been used in some countries, most of the time with great success; several examples have been discussed in the previous chapter. These modern instruments are obviously not a magic wand to eliminate poverty, but they do represent an additional economic tool for well-managed, growth-oriented private and public companies as well as government departments - just the way they have been used in other parts of the world.

75. From other studies, it would appear that there is scope for improvement. In this regard, in a World Bank analysis of African oil procurement[29], it was found that better fuels procurement and distribution in Africa could save the region an amount significantly larger than what it received yearly as net disbursements of World Bank loans and credits. The lack of foreign exchange for purchasing fuels and poor purchasing practices significantly increase the cost of supplies by an estimated 8 per cent, or around US$ 690 million; of this, the World Bank estimated that US$ 550 million could be saved by changes in procedures, practices and institutional arrangements. Inefficiencies in refining and distribution have compounded the costs; savings of another US$ 730 million should, according to the bank, be possible in these areas, of which US$ 370 million could be saved just by better practices. In the latter case, it was found in this analysis that at the heart of the problem is the lack of proper institutional arrangements and pricing policies. The international companies operating in sub-Saharan Africa as partners in refining and distribution operations normally operate on the basis of cost-plus pricing systems, which provide no incentives to increase efficiency. As concerns import operations, the core of the problem is inappropriate purchasing procedures.

76. It is not clear whether similar savings are possible for metal and fuel exporters, nor whether the oil importers in southern Africa are as inefficient as those in the rest of the continent. Nevertheless, there would seem to be a good case for investigating the possibilities for improvements of sales and procurement techniques.

77. Added to the possibility of increasing export earnings or reducing purchasing costs, there is also a strong case to be made for the use of risk management markets to increase economic security - at least in those cases where a viable risk management market is available (which excludes commodities such as uranium, diamonds, tobacco or fisheries). For countries that are strongly dependent on just one or a few commodities for most of their export earnings or a large part of domestic employment, it would appear very useful, at times even essential, to be able to secure proceeds. Considering the often awkward financial situation facing these countries, it may become imperative to have the capacity to lock in attractive prices, even at the price of forgoing the ability to benefit from even higher prices, should they occur. The use of risk-management instruments allows this. Finally, risk-management instruments and structured

financing constructions make it possible to reduce the risks of investments and loans, thus lowering the costs of access to finance.

78. Taking into account the price volatility of the commodities exported and imported by these countries, managing price risks would seem to have merits. As the table below shows, in 44 per cent of the cases, average monthly crude-oil prices change by more than 5 per cent from one month to the next; for copper, this is the case in one out of three times. Gold and nickel prices are somewhat more stable, but still price risks are significantly large to justify an effort to manage them.

Table 2

Frequency distribution of price changes from one month to the next, January 1992 to December 1994 (relative frequency of percentage changes - increase or decrease - of average monthly prices, in percentages)

Percentage price change	< 2 %	2 - 5 %	5 - 10 %	> 10 %
Crude oil	28	28	39	5
Copper	25	47	22	6
Gold	50	42	8	-
Nickel	19	39	28	14

Source: Calculated from UNCTAD, Monthly Commodity Price Bulletin, January 1995

79. Nevertheless, only a few companies in developing countries (although their number is growing) have made effective use of the possibilities offered by these instruments. In part, this is because many commodity-trading companies and their governments are unaware of the beneficial possibilities that modern financial techniques can provide; in part, because even when they are aware of these benefits, there are constraints on use of risk-management markets, including national regulations on foreign-exchange transfers, a lack of proper intermediary institutions, and inadequate physical and financial infrastructure and services. Potential users are also often wary of using these markets, because of these markets' complexity and lack of transparency, and because of the real problems of building risk-management activities into the activities undertaken by a number of existing departments in the company or government.

80. The lack of transparency of in particular over-the-counter markets, where the longer-term instruments of most use for strategic purposes are offered, can indeed make it difficult for a company or government to evaluate whether, for example, a swap arrangement offered by an investment bank is a good deal or not, or whether one is being led into a poor deal. The negotiation process, in which both parties arranging the swap have to agree not only on a "fixed

price" (on the basis of a forward price expectation), but also on such matters as reference periods, currencies, payment schedules, and collateral arrangements, is definitely one in which the developing country entity has a much weaker hand. Nevertheless, it should be kept in mind that some swap prices are by now fairly standardized (there are even bulletin boards that give day-to-day swap prices for key fuels and metals), and there are some simple rules that make negotiation much easier: one can keep the deal simple, and can can play off various investment banks and trade houses against each other. A standardized swap can be tendered among potential counterparties (with whom contacts had been initiated earlier and with whom the standard swap specifications have been negotiated), with the counter party that offers the best price getting the deal; this also allows a company or government to choose the moment it sees fit (when market prices are attractive) to issue the tender. Using this type of organizational arrangements, fears of not getting the best price of the market can easily be allayed.

81. To start risk management as yet another activity of the company, or government department, may indeed appear rather cumbersome. However, in practice, starting risk management would not imply adding another department or another layer in the managerial structure, but changing of existing practices throughout (a part of) the company. Even in large companies, the extra manpower requirements of risk management can be limited to one or two persons, while in medium-size companies, a half-time accountant would probably be enough. Nevertheless, to change existing practices may appear sufficiently daunting in itself. Traders, financial staff, accountants and managers have to adopt a risk-management outlook, and to accept and follow certain new procedures. The costs of not being able to make these changes while still using risk-management markets can be very high indeed: witness the multi-hundred million dollar losses of, inter alia, Metallgesellschaft, Codelco and Barings. For companies with sloppy marketing and management practices, with no proper records of purchases and sales and with no access to reliable up-to-date market information, the use of risk-managment markets may indeed prove overly complicated. For those who have properly set up their physical marketing activities and are willing to adapt their way of functioning, though, the safe practices to adopt are well-known.[30] Managers need to devise a risk-management strategy and set out which risk management activities can and should be undertaken, and how, and to check regularly what is happening; traders have to report almost instantaneously on the transactions that they have undertaken; outside confirmations of transactions are not sent to the traders who initiated the transaction, but to another part of the company, for independent consolidation; financial flows are also independently managed. With a good managerial policy, and a sound system of checks and balances, it is possible to control the use that is made of risk-management markets. Even relatively unsophisticated companies can make a safe and sound use of risk management markets by entering into a swap arrangement, negotiated by the central management, once or twice a year.

82. There are also a number of "outside" constraints to the use of risk-management markets. A general description of these constraints, of relevance in several southern African countries, is given below.

A. Negative publicity

83. Despite the promising features of derivatives, many policy makers, including in developing countries, tend to look at the instruments with suspicion. Lack of knowledge and experience of hedging sometimes results in a simple ban on the use of the instruments, as was

the case in the United Republic of Tanzania, and in Colombia until 1992. Indeed, risk-management activities can at times result in losses, but this does not mean that pursuing a well-considered strategy will not succeed. The cases described in chapter 3 show the contrary: among other things, managing price risks by means of commodity-price linked instruments can serve to improve producers' and traders' income and expenditure prospects, to secure the government's budgetary outcomes or targets, to ameliorate access to investment finance, to enhance debt-service capabilities, and to open up the possibility to benefit from a "flexibility value".

84. Another argument used against the instruments is that shareholders, the board and the public will not understand when the entity finally receives a lower price or pays a higher price than that actually quoted on the world market. These groups need to be educated on the purposes and benefits of risk management: the ability to make long-term and reliable investment, or more generally, financial plans without incurring large risks which will surely be appreciated by the board and shareholders. And consumers will be content when a company is able to guarantee a relatively stable price.

85. Some southern African countries have recognized these points and have accordingly adapted existing policies. For instance, the Zimbabwe Reserve Bank officially approved gold loans for new projects and capital expansion and forward contracts to hedge part of the annual commodity sales, in October 1993 (resulting among other things in the Cluff Resources deal described above). In South Africa, local gold producers have been allowed to hedge part of their output since 1981.[31] Several other countries, however, do not yet have a clear legislation on hedging activities.

B. Improper institutional arrangements

86. An entity needs an incentive to manage risks: without such incentives, risk management may well be good for the country as a whole, but only causes risks to the entity concerned. For example, if the sales price of a refinery is automatically determined on the basis of average world market prices over an earlier period (as is the case in most of the countries covered in this study), the refinery would actually take risks if it tried to lock in, for example, attractive prices (if it is wrong, it would still be forced to sell its products for low prices). Similarly, if two companies are concerned (for example, an oil import and a coffee export company, to fix the number of bags of coffee to be exported for a certain quantity of oil imports), then both companies need to be able to benefit from a risk-management arrangement. To provide a proper environment for risk-management, the institutional arrangements need to be such that risks are borne by those who can manage them, and that the benefits of risk-management are distributed along with the risk-managing capacity.

C. Counterpart risks

87. Counterpart risk - the risk that the counterparty of a transaction does not meet his contractual obligations - is an important obstacle for physical trade as well as for the use of risk-management instruments. In physical trade, part of these risks can be insured - through one of the large insurance companies, or through forfeiting.[32] In risk-management markets, counterpart risks are insured through the exchange clearing house, but in the over-the-counter market, one relies solely on the reputation of the counterpart. A problem then is that, especially in the case

of developing country companies, it is often difficult to assess their credit situation because of poor accountancy practices, and limited previous trading history.

88. Counterpart risks hinder the access of developing country entities to risk-management markets. Even for developed country firms, counterparties are increasingly demanding that firms with single-A or lower ratings set aside cash or securities as collateral. Very few developing country firms even have an international investment-grade rating; many countries do not even have domestic rating agencies. Sovereign risk factors further add to the problem.

D. Sovereign risks

89. Sovereign risk is the assessment of a company's or country's ability to honour its contractual obligations: for example, what is the risk that the government will change its regulations, and thus make it impossible for a company to transfer its resources abroad to pay for its financial obligations under a swap agreement? Worries over sovereign risks are a major factor holding back banks' lending activities.[33]

90. Banks as well as trade houses have country-specific exposure ceilings, which are a function of the perceived sovereign risk in dealing with the countries concerned. The credit exposure implicit in over-the-counter instruments can be very large, especially if commodities are involved. Banks' and trade houses' credit committees, burned by a series of costly defaults from developing country clients, are naturally reluctant to approve large exposures. Some risk-management deals are thus blocked not because the counterpart is considered as unreliable, but because the resultant exposure would make the bank or trade house surpass its country credit ceiling. The structuring of a deal, in particular using commodities as collateral, can help to overcome some of these access problems, but can be prohibitively expensive in countries with unclear ownership laws and export regulations.

E. Government intervention

E.1 Governments as risk takers

91. As has been discussed in chapter 2, sometimes governments intervene in product marketing in such a way that they take over virtually all the price risks. This intervention can be direct, by taking charge of the marketing activities, or indirect, through price support and subsidies. As a result, the price risks of the private sector are small and these companies show little inclination to manage them.

92. An example of active government participation in marketing is the oil import marketing being done by Zimbabwe's parastatal NOCZIM, which absorbs all import price fluctuations. Under these circumstances, there is little incentive for retailers to manage price risks. The same is true in cases where a state-owned company markets mineral exports without transferring world market price fluctuations to producers.

93. Price-support schemes may as well reduce the impulse for oil and mineral importing and producing enterprises to hedge their imports and production. For example, this is the case under Zimbabwe's gold-marketing system, which guarantees a floor price and includes a taxation

arrangement when prices increase. Other government interventions like subsidies may further compensate the oil-importing and/or mineral exporting companies for their exposure to world market prices.

94. However, these policies put a high pressure on a government's budget, often leading to cuts in necessary expenditures on social and development projects. Considering this situation, a case can be made for governments to stop carrying price risks, which can be covered by the private sector, through the application of risk-reducing techniques; alternatively, government bodies can lay off their own price risks on international markets.

E.2 Taxation policy

95. Another form of government intervention that may have a negative impact on companies' attitude towards using price-risk management instruments is the taxation policy in place. If, for example, gross rather than net profits are exposed to price risks - because taxation rates are dependent on world market prices - the companies concerned will show little interest in using modern price-risk management techniques. Furthermore, a poorly conceived tax treatment of price-risk management may considerably increase its costs. If, for example, paper and physical transactions are subjected to taxation that do not take into account their interrelation, the tax that has to be paid on unrealized profits may lead to totally different results than those aimed at under the price-risk management programme.

96. Apart from a prohibitive taxation regime, uncertainty with respect to the taxation system can also work as a deterrent or make access to international risk-management markets impossible. An example of an unexpected tax was the instant tax levied by the Government of Zambia in 1992. This tax was imposed on copper sales by having the proceeds from ZCCM's exports above a certain copper price deposited in a "sterilizing account" at the Reserve Bank. This type of practice is not uncommon: to reduce the pressure on the domestic currency when the world market price of the main export commodity increases, monetary and fiscal policies have to be devised to absorb the extra offer of foreign currency. But when designing such policies, governments may wish to take into account the marketing commitments and the risk-management activities of the export and import sector: if not, domestic and international price movements risk losing their close correlation, making a failure out of otherwise healthy marketing and risk-management strategies.

F. Foreign-exchange policy

97. In many developing countries, companies do not have easy access to, and/or possession of, adequate foreign exchange. As a side-effect of financial policies conceived to counter capital flight and speculation, trading companies are often prevented from using risk-management instruments. The authority to allocate foreign exchange rests often with the Central Bank, which regularly makes foreign exchange available only under specific circumstances, for instance when expenditure has to be directly exchanged for an equal value of imports; companies are also often allowed to retain export receipts only when these are used, within a short time, for imports. Until January 1994, for instance, the Export Retention Scheme in Zimbabwe allowed exporters to retain part of their export earnings, but only in the form of import certificates, which were of no use for financing margin calls.

98. Sometimes, access to foreign exchange depends on obtaining a license, which can lead to time-consuming approval procedures. A related problem is that in some countries an estimate must be made of future foreign exchange needs months in advance. The initial amount needed to enter into a price-risk management transaction, like the margin deposit when buying futures, can still be planned. However, taking into account the fluctuating prices on the world market, daily payments can be required for the maintenance margins involved. These often have to be fulfilled within 24 hours. More flexible access to the needed foreign exchange is thus necessary.

99. In Mozambique, foreign-exchange transfers are highly regulated. In 1994, residents were allowed to open a foreign currency account at commercial banks, but Central Bank approval is still necessary for transferring these foreign currencies abroad. Zimbabwe has recently established the Foreign Currency Account system, under which exporters are allowed to retain 60 per cent of their foreign exchange earnings (but only for a maximum period of 90 days - of little use to longer-term risk management). Zambia is among the southern African countries that follow a more liberal foreign-exchange policy. Since the repeal of the Foreign Exchange Act early in 1994, Zambian companies are free to borrow foreign exchange abroad, and to use foreign exchange for lines of credit, off-shore payments and securities. Instead of channelling 60 per cent of its foreign-exchange earnings through the Central Bank, ZCCM is now allowed to sell currency directly to the commercial banks. In Botswana, capital transfers have only to be reported to the Central Bank for monitoring purposes, but they are not limited by any other constraints or requirements.

100. Countries need not liberalize their whole capital account in order to enable their private sector to use foreign-risk management markets: by using some form of licensing system, capital controls and risk management on foreign markets are compatible. In any case, governments would do well at least to monitor use of foreign exchange for risk-management transactions, in order to avoid tax evasion and other abuses.

G. Lack of intermediaries

101. While large developing country companies (a category into which many oil and minerals companies fall) and governments could conceivably open offshore bank accounts directly with foreign brokers, and use risk-management markets in a direct manner, smaller companies normally have to rely on the services of intermediaries: "knowledge" intermediaries (such as brokers), and finance intermediaries (such as banks). In most developing countries, there are no reliable brokers (nor do countries have the brokerage regulation which allows their existence), and very few developing country banks have any experience in arranging and financing risk-management transactions - even though they are much better placed than international banks to know the credit situation of domestic companies and to monitor collateral arrangements. Larger companies could conceivably act as risk-management intermediaries for smaller ones (Chile's ENAMI, a copper company, reportedly has done so), but nevertheless, the lack of a proper intermediary structure in many countries restricts access to risk-management markets.

CONCLUSION

102. Minerals and fuels play a large role in the countries covered in this report, in some cases as imports (Mozambique), in others as exports (Angola, Botswana, Namibia and Zambia), and in still others as sources of production and employment (South Africa and Zimbabwe). These commodities are characterized by high price fluctuations on the world markets, causing large price risks when the commodities enter trade. For imports, these risks are generally borne by final consumers (at least beyond a short period in which the government absorbs price changes). For exports, the risks are carried both by governments and by (generally large) private companies. In fact, small-scale enterprises play virtually no role in the production of the commodities covered in this paper, with the exception of gold in Zimbabwe - but in this country, the Central Bank protects producers against downward price risks by the provision of a minimum price.

103. Fuel price risks are of direct concern to many consumers. Also, even though export price risks are borne (as indicated) by large entities and governments, a much larger part of the population is indirectly exposed to these risks, because of the importance of the affected sectors in these countries. Thus, gold mines that have not locked in minimum prices may have to close down when prices are low, and other metals producers may not be able to pay their local suppliers. Government expenditures in crucial areas may have to be cut if export prices are low. Economies can also be strongly affected through the Dutch disease effect as well, when export prices are high: minerals or oil exports, bloated by high prices, crowd out other potential exports and generate domestic inflation.

104. There are thus good arguments to consider the use of risk-management markets. This report has described a number of such practices to secure export revenues or import costs, to ensure that budgets are sufficient to meet the planned goals, to improve earnings and reduce costs, and to enhance access to investment finance and improve debt-servicing capabilities. These practices have, for example, been followed, by Mexico's Ministry of Finance to ensure that its income was sufficient to meet budget goals; by oil companies in Congo and Ghana to lock in part of their export earnings, or fix part of their import costs; and by companies in Ghana and Angola to create the necessary conditions for new investment projects in the oil and gold sectors. In this connection, companies and governments may use organized futures and options markets, which entails a fairly active day-to-day involvement, or they may enter into a longer-term deal with an investment bank, a large trade house, or another financial intermediary.

105. Nevertheless, despite the availability of a multitude of commodity risk-management instruments, and possibilities to improve marketing practices, use of these instruments by developing countries, including in the southern African region, has remained limited. This has been due partly to a lack of awareness and to such concerns as uncertainty about whether one will be able to negotiate a fair deal or about the ability to limit illegitimate and dangerous risk-management activities). It has also been due partly to a number of constraints, ranging from fears of negative publicity to government bans and access difficulties.

106. However, modern marketing, risk management and financing instruments can help to improve export proceeds, and to reduce risks as well as borrowing costs. It is therefore likely to be worthwhile for companies and governments to identify the price risks to which they and

their population are exposed, and consider whether a risk-management programme would b
Although many barriers would need to be overcome to move from the identification of risks
the implementation of a successful risk-management programme, the experience of sever
countries studied in this report has shown that none of them is unsurmountable.

ANNEX I

COMPANY OVERVIEW

Country/ Commodity	Company	Controlling entity	Price-risk exposure[1]
Angola			
Oil	- Sonangol	Angola State	S
	- Chevron (US)		P
	- Elf Aquitane (France)		P
	- Texaco (US)		P
	- Caltex	Chevron and Texaco (both US)	P
	- Fina (Italy)		P
	- Shell/BP (UK, Netherlands)		P
	- Repsol (Spain)		P
Botswana			
Copper	- BCL Ltd	Botswana State and AAC (South Africa) through BRST (Botswana)	P/s
Gold	- Trillion Resources	Trillion Resources (Canada)	P
	- Mining and Development Botswana Mines	Botswana State	S
Nickel	- Tati Nickel Mining Co	AAC (SA), 51%, and Francistown Mining (Botswana), 49%	P
	- BCL Ltd	Botswana State (15 %) and Botswana RST Ltd. (AAC, SA)	P/s
Oil	- Shell		P/c
	- BP		P/c
	- Total		P/c
	- Caltex	Chevron and Texaco (SA)	P/c
	- Engen	Gencor	P/c
Mozambique			
Gold	- Benicon (SA)		P
	- Alluvioes de Manica	Lonrho PLC (UK) and Alma (Mozambique state-owned company)	P/S
Oil	- Empresa Nacional Petroleos de Moçambique (Petromoc)	Mozambique State	S/c
	- BP		S/c

[1] This column indicates the entities taking the price risks in the mineral and oil exports and oil imports. S means that the State is bearing the risks; the small s means that the state is possibly or partly exposed to the price risks. P indicates that the private company carries the risks, and p is used for possible or partly risk taking by the private company. C and c mean that consumers, respectively, are fully, or possibly and partly, exposed to price risks.

Namibia			
Copper	- Tsumeb Corporation Ltd.	Gold Fields of South Africa through Gold Fields of Namibia	P
Gold	- Gold Fields Namibia Mining	Gold Fields of South Africa	p/s
	- Navachab Gold Mine	AAC	p/s
	- Otjihase Mining Venture	Golds Fields of South Africa through Tsumeb Corp Ltd.	p/s
Oil	- Shell/BP		P/c
	- Caltex		P/c
	- Engen/Mobil		P/c
	- Trek		P/c
South Africa			
Copper	- Palabora Mining Co.	RTZ Corp PLC (UK) and Newmont Mining Corp.	P
	- O'Okiep Copper Co.	Gold Fields of South Africa	P
	- Foscor	South Afica State	S
	- Rustenburg Platinum Holdings	Anglo American Platinum Corp.(Amplats)	P
	- Impala Platinum	Gencor (SA)	P
	- Western Platinum	Lonrho and Gencor	P
Gold	- East Rand Proprietary Mines	AAC	P/S
	- Free State Consolidated Gold Mines	AAC through Or. Free State Inv.	P/S
	- Vaal Reefs Exploration & Mining Co.	AAC	P/S
	- Driefontein Consolidated	Gold Fields of South Africa	P/S
	- Western Deep Levels	AAC	P/S
	- Hartebeestfontein Gold Mining	Anglovaal	P/S
	- Randfontein Estates Gold Mining		P/S
	- Harmony Gold Mining Co.	Barlow Rand through Rand Mines	P/S
	- Kloof Gold Mining Co.	Gold Fields of South Africa	P/S
	- Beatrix Mines Ltd.	Gencor through Gengold	P/S
	- Oryx Gold Holdings Ltd.	Gencor through Gengold	P/S
	- Western Platinum	Lonrho (UK)	P
	- Lebowa Platinum Mines	Amplats	p/s
	- Palabora Mining Co.	RTZ and AAC	p/s
	- Eastern Platinum	Lonrho and Gencor	P
Nickel	- Rustenburg Platinum Holdings	Anplats	
	- Impala Platinum	Gencor (43%)	P
	- Palabora Mining Co.	RTZ and Newmont Mining Corp.	p/s
	- Western Platinum	Lonrho (UK)	P
	- Northam Platinum Ltd.	Goldfields of South Africa Ltd.	P
Platinum	- Rustenburg Platinum	Anplats	p/s
	- Impala Platinum	Gencor	p/s
	- Western Platinum	Lonrho PLC	p/s
	- Lebowa Platinum Mines	Amplats	p/s
	- Palabora Mining Co.	RTZ and Newmont Mining	p/s
	- Potgietersrust Platinum Ltd.	Amplats	p/s
	- Eastern Platinum	Lonrho and Gencor	P
	- Northam Platinum Ltd. (SA)	-	P

Oil	- Strategic Fuel Fund	South Africa State	S
	- Engen		P
	- Shell		P
	- Caltex		P
	- BP		P
	- Total		P
Zambia			
Copper	- Zambia Cons. Copper Mines	Zambia State, and 27% AAC	S/p
Oil	- Zimoil	Zambia State	S
Zimbabwe			
Copper	- Mhangura Copper Mines Ltd	Zimbabwe State through Zimbabwe Mining Dev. Corp.	S
	- Bindura Nickel Corp.	AAC	P
	- Reunion Mining of Zimbabwe	-	P
	- Caledonian Mining Corp. (Can.)	-	P
Gold	- Independence Mining	Lonrho PLC	S/P
	- Cluff Resources Zimbabwe	Hutchinson Group	S/P
	- Corsyn Consolidated Mines	Lonrho PLC	S/P
	- Falcon Gold Zimbabwe	Falcon Mines PLC	S/P
	- Blanket Mine	Trelleborg AB, Brascan/ Noranda	S/P
	- Golden Kopje Mine	Brascan/ Noranda, Trelleborg	S/P
	- Mhangura Copper Mines	Zimbabwe State	S/P
	- Rio Tinto Zimbabwe	RTZ Corp PLC	S/P
	- Sabi Consolidated Gold Mines	Zimbabwe State	S
Nickel	- Bindura Nickel Corp.	AAC	P
	- Empress Nickel (toll-refining)	RTZ Corp PLC	P
	- Mhondoro Mining Ltd.	Broken Hill Proprietary (Australia), RTZ, Delta Gold (Australia)	P
Platinum	- Hartley	Broken Hills Proprietary,	P/s
		Delta Gold	P/s
	- Bindura Nickel Corp.	AAC	P/s
	- Mhangura Copper Mines	Zimbabwe State	S
Oil	- NOCZIM	Zimbabwe State	S/C

ANNEX II

Figure 1 : OIL PRODUCER-BANK OIL SWAP

Figure 2 : OIL CONSUMER-BANK OIL SWAP

Figure 3 : CLUFF RESOURCES-PTA GOLD LOAN

Figure 4 : MEXICANA DE COBRE-PARIBAS COPPER-LINKED FINANCING

Figure 5 : SONATRACH-CHASE OIL-LINKED FINANCING

Figure 1: OIL PRODUCER-BANK OIL SWAP

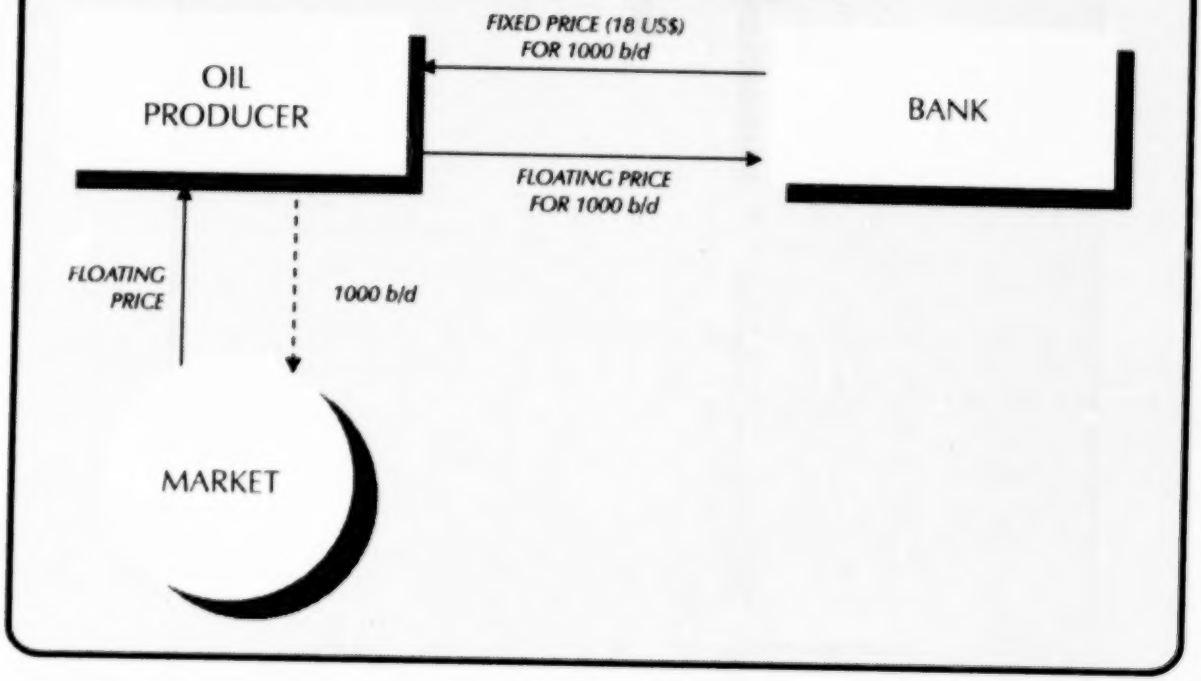


Figure 2: OIL CONSUMER-BANK OIL SWAP

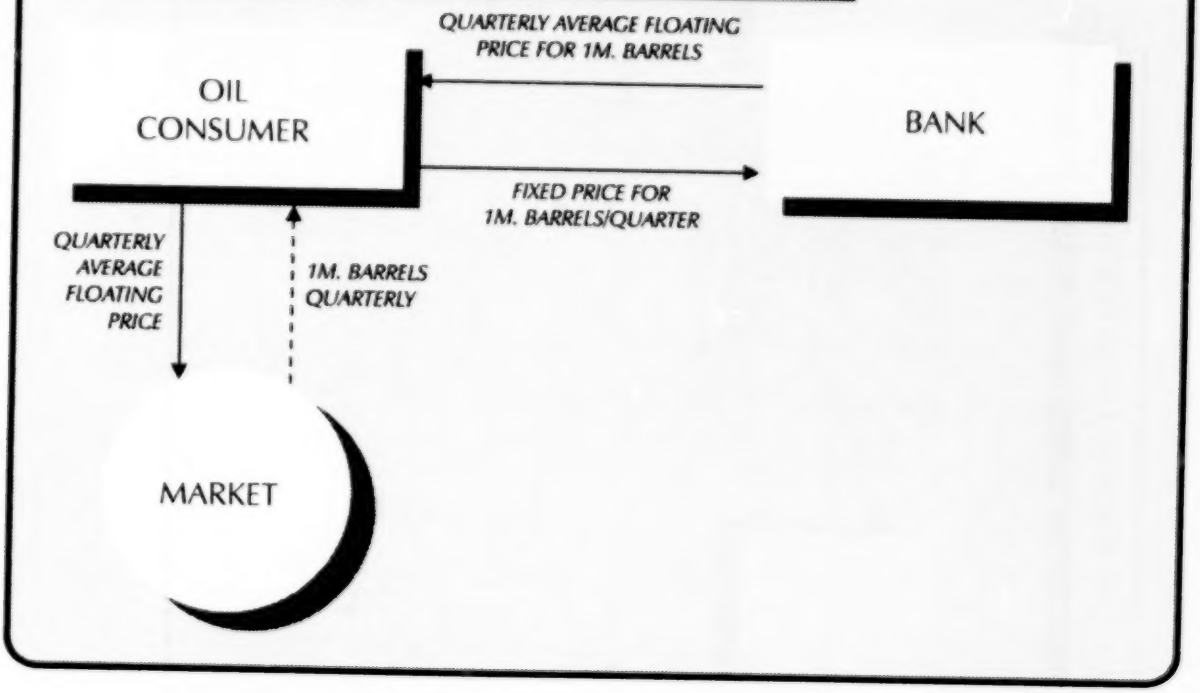


Figure 3: CLUFF RESOURCES-PTA GOLD LOAN

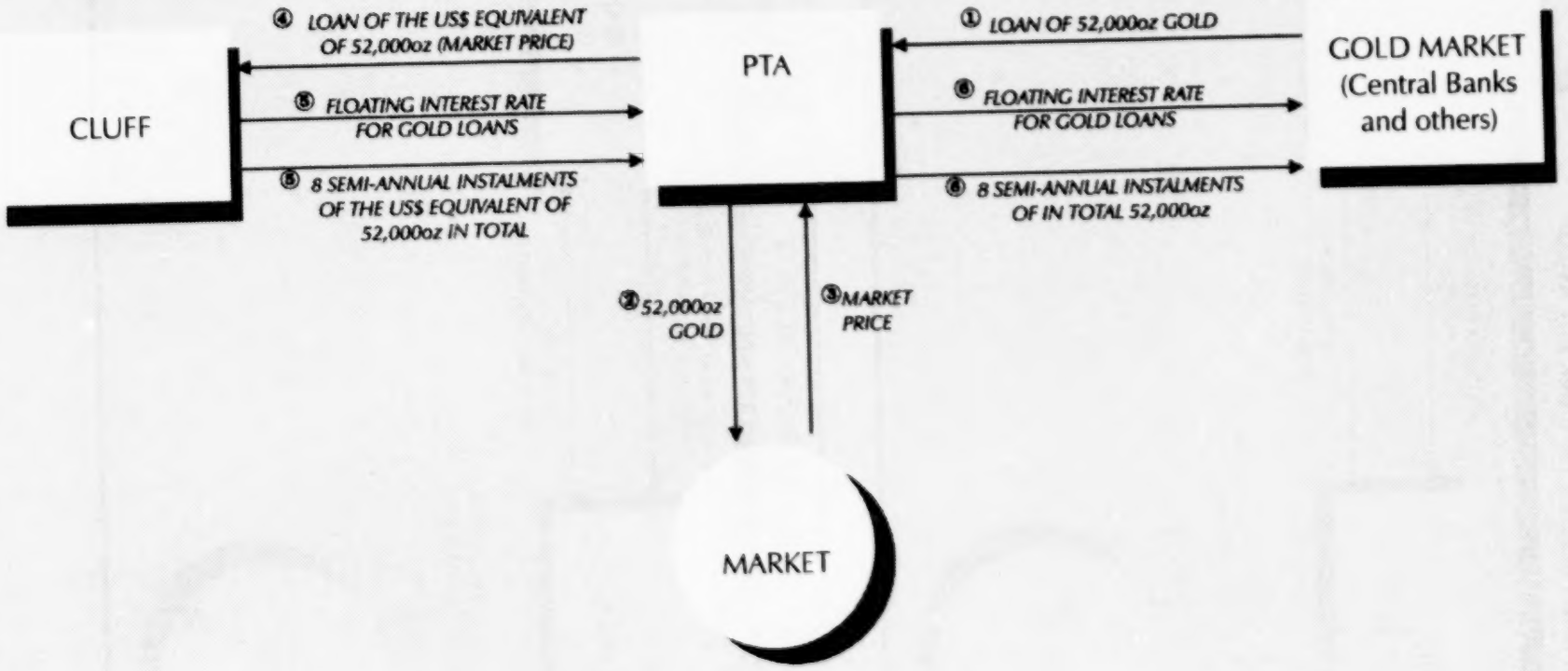

④ LOAN OF THE US$ EQUIVALENT OF 52,000oz (MARKET PRICE)
CLUFF
⑦ FLOATING INTEREST RATE FOR GOLD LOANS
⑤ 8 SEMI-ANNUAL INSTALMENTS OF THE US$ EQUIVALENT OF 52,000oz IN TOTAL
PTA
① LOAN OF 52,000oz GOLD
⑧ FLOATING INTEREST RATE FOR GOLD LOANS
⑥ 8 SEMI-ANNUAL INSTALMENTS OF IN TOTAL 52,000oz
GOLD MARKET (Central Banks and others)
②52,000oz GOLD
③MARKET PRICE
MARKET

Figure 4: MEXICANA DE COBRE-PARIBAS COPPER-LINKED FINANCING

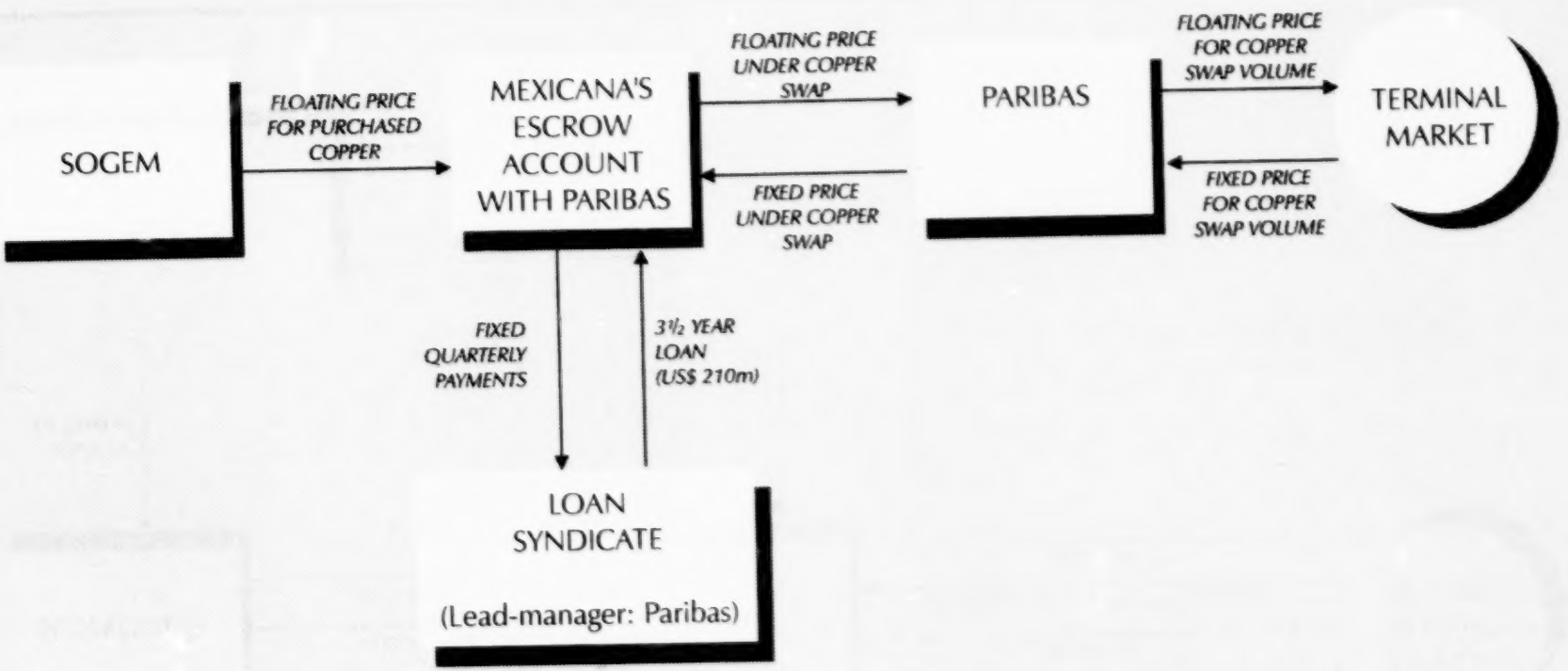
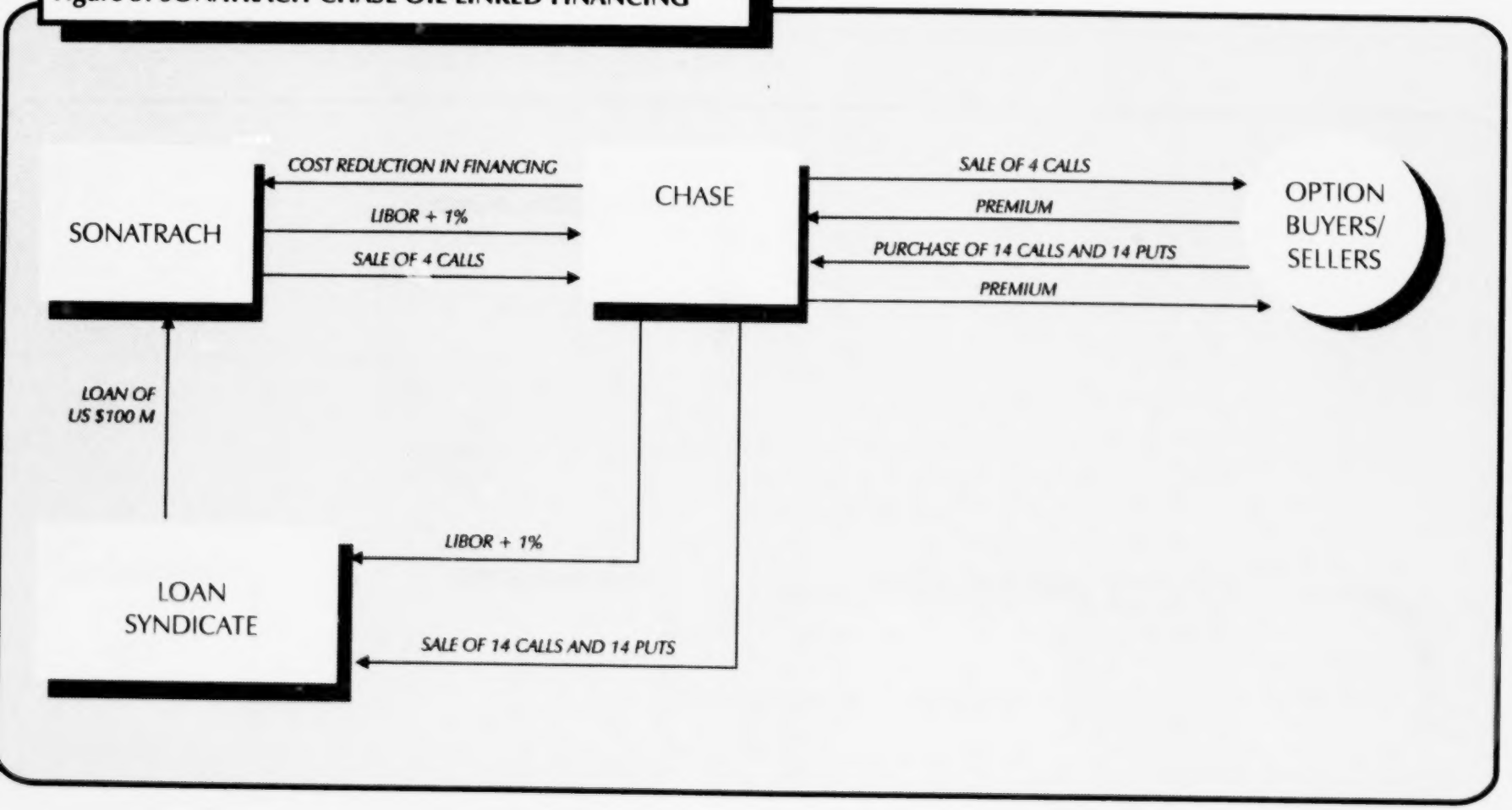


Figure 5: SONATRACH-CHASE OIL-LINKED FINANCING



Endnotes

1. This is one of the background papers written in the framework of a project on commodity price-risk management in Southern African countries financed by the Government of the Netherlands.

2. Producer price systems for copper, aluminium and nickel have been replaced by a system of reference prices, in which London Metal Exchange prices play a major role; and the producer price system for cobalt has lost much of its effectiveness, with prices now being determined on the spot market. In the oil market, the OPEC no longer sets the effective market prices, which are instead largely determined on the New York and London futures markets. Longer-term contracts nowadays specify yearly offtakes; these sales are mostly not at fixed prices, but at automatically revised or renegotiated prices.

3. UNCTAD, Commodity Yearbook 1994 (New York and Geneva, 1994)

4. Ibid. Sub-Saharan Africa excludes North and South Africa.

5. Gold Service (January 1993), Supplement to the Mining Journal

6. "The South African oil industry must confront challenges", Pipeline, September 1995.

7. Istvan Dobozi, "State enterprises, supply behaviour and market volatility", Resources policy (March 1993)

8. It should be noted that, first, although carefully checked and based primarily on the most recent literature sources, some of the information given is outdated as a result of rapidly changing policies; and secondly, because of limited information available on minerals and oil marketing, price levels and price adjustments, the entities that carry the price risks cannot always be clearly identified.

9. See, for instance, "Gold hedging controversy flares up again", Financial Times (25 July 1991)

10. Kenneth Gooding, "Producer hedging keeps price low", Financial Times (25 June 1991)

11. "South Africans abandon reserve on gold hedging", Financial Times (29 July 1993)

12. Information provided by the Department of Mineral and Energy Affairs, Republic of South Africa.

13. Financial Times (29 July 1993)

14. Information provided by the Department of Mineral and Energy Affairs, Republic of South Africa.

15. It should be noted, though, that the oil refineries have agreed to adapt their product mix to local demand, given the supply of synthetic oil; for the resulting inefficiencies they are directly compensated through a levy on consumers.

16. On the other hand, according to some estimates, SASOL's variable production costs are below US$ 10 per barrel, so continued government support may not be necessary ("The South African oil industry must face challenges", Pipeline, September 1995).

17. See UNCTAD, "Market-based commodity price risk management instruments - a basic description", paper prepared for a workshop on "Government policies affecting coffee export marketing", Nairobi, 29 November - 3 December 1993. See also UNCTAD, "A survey of commodity risk management instruments", UNCTAD/COM/15/Rev.1, 21 December 1994.

18. See also Stijn Claessens and Panos Varangis (April 1994), Oil price instability, hedging, and an oil stabilization fund - the case of Venezuela, The World Bank, Policy Research Working Paper 1290.

19. Considerations are somewhat more complicated in the case of a buyer who requires fuels as an input, but who needs to remain competitive; for instance an aluminium refinery, for which the costs of fuels account for a major part of its total processing costs. If this refinery locks in a certain fuel price, and market prices decline, it risks being undercut by its competitors. In cases like this, a more flexible hedging strategy (for example using risk management purely as a marketing tool) or hedging with options could provide valuable alternatives.

20. Mark Potts and Thomas W. Lippmann, "Mexico locks in price of $17 a barrel on oil", Washington Post, (27 March 1991)

21. "Ecuador - economy goes off a cliff", Latin American economy & business, (October 1993)

22. See for example J. Bonnefous, "Structurally sound", Futures and Options Energy Special 1992, who explains that an oil company that could obtain a US$ 22.7 million loan while contributing US$ 11.3 million itself for a certain project if future prices were not protected, could receive US$ 29 million (and thus need only US$ 6 million in own capital) if a swap was built in.

23. Jack D. Glen (June 1993), How firms in developing countries manage risk, International Finance Corporation, Discussion paper no. 17

24. Often under such option-related repayment schedules, there is a pre-arranged distribution schedule of eventual profits between the two parties. In the Sonangol case, information on the shares is not publicly available.

25. Precise information on the interest rate structure of the transaction has not been made public.

26. The minimum price for bullion gold registered on the LME in the period October 1992-September 1993 was US$ 329.85/oz; the maximum price was US$ 403.25/oz.

27. Venezuela issued US$ 19.7 billion of oil-indexed loans as part of the Brady plan (Musa Essayyad, "Using commodity-indexed financing to fund OPEC/Alaska's development projects", OPEC Review, December 1992).

28. Ibid.

29. World Bank, Africa Technical Department, Industry and Energy Division Note No. 17, Petroleum Industry Data Sheets - Sub-Saharan Africa; summary 1990, September 1992. See also M. Schloss, "Does petroleum procurement and trade matter?", Finance and Development, March 1993.

30. See, for instance, UNCTAD secretariat, Company control and management issues; the basic requirements for a sound use of market-based risk management instruments, 1994.

31. However, because of the law that the gold produced should be sold to the SARB, physical delivery is excluded, and all hedges have to be financially settled.

32. Forfeiting is a mechanism under which a forfeiting company (generally a bank) interposes itself between a seller and a buyer. The forfeiting company assumes full credit, political and interest rate risks on the goods (although it can lay off some of the risks in the secondary forfeiting market). The buyer or seller effectively obtains a loan, for which it has to pay a somewhat higher interest than with normal commercial lending because the forfeiter assumes all risks. Similar to forfeiting is factoring, which is mainly short-term; again, factoring companies take over all risks, at a fee of 6 to 7 per cent above base lending rates.

33. See also Counterpart and sovereign risk obstacles to improved access to risk management markets: issues involved, problems and possible solutions, UNCTAD, TD/B/CN.1/GE.1/3, 2 August 1994.

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